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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,741	02/18/2004	Jun-Young Kim	030681-629	2053
21839	7590	06/01/2005	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P			WILSON, ALLAN R	
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ALEXANDRIA, VA 22313-1404			PAPER NUMBER	
			2815	

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/779,741

Applicant(s)

KIM ET AL.

Examiner

Allan R. Wilson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) 40-56 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-15,17-20 and 25-39 is/are rejected.
- 7) ☒ Claim(s) 3-5,16 and 21-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-39, in the reply filed on May 18, 2005 is acknowledged. The traversal is on the ground(s) that the method to claim 40 carefully tracks apparatus claim 1, and examination of claim 12 would necessarily include same search and consideration as claim 50. This is not found persuasive because not all method claims track corresponding device claims. Claim 12 is a product by process claim (see rejection below) and the process will not be fully examined. Claims 40-56 should be canceled.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

Claims 8, 10, 24 and 27 are objected to because of the following informalities: The term "and/or" is confusing. The term "or" should be sufficient for an open claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1, 6-10, 17-19, 25-29 and 37-39, are rejected under 35 USC § 102(b) as being anticipated by Nishizawa et al. ("Nishizawa") U.S. Patent No. 4,329,625.

With regards to claims 1, 19, Nishizawa illustrates in figures 1A-2C, particularly figure 1B, (entire document) a substrate 1; an intrinsic region 2 formed on the substrate; a first region 5 formed to a relatively shallow depth in the intrinsic region; and a second region 3, 4 formed to a relatively deep depth in the intrinsic region and distanced from the first region, wherein the first and second regions are doped with different conductivity types.

With regards to claims 6 and 25, Nishizawa illustrates in fig. 1B a discontinuous control film pattern 6 with a plurality of openings is formed on a part of the surface of the intrinsic region.

With regards to claims 6, 8, 10, 17, 25, 27, 29 and 37 the examiner had to assume what the product would be by the process claimed. For example, in claim 6 it was assumed that the product was a first region with a shallow depth. The claim that it was "intended for the formation of the first region and the first region is formed to a relatively shallow depth using the openings of the control film pattern" was not considered to have full patentable weight. A "product by process" claim is directed to the product per se, no matter how actually made, MPEP 2113 "Product-by-Process Claims," In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90; In re Marosi et al, 218 USPQ 289; and particularly In re Thorpe, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by

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process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear.

With regards to claims 7, 9, 26 and 28, Nishizawa discloses in col. 7, lines 32-35, the control film 6 is a silicon oxide film.

With regards to claims 18, 38 and 39, the claimed use of structure is not considered to add any structure to the claimed device and is considered to be intended use of the device. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 11-15, 20 and 30-36 are rejected under 35 USC § 103 (a) as being unpatentable over Nishizawa as applied to claim 1 above, and further in view of Worley, U.S. Patent No. 5,466,948.

With regards to claims 2 and 20, Nishizawa is discussed above, it does not show a the first region is doped with p+ type and comprise thereon an electrode patterned in such a way as to be in discontinuous contact with the first region. Worley illustrates in figure 1B a the first region 132 is doped with n+ type and comprise thereon an electrode 140 patterned in such a way

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as to be in discontinuous contact with the first region.. It is well known to one of ordinary skill in the art to reverse the conductivity type from n to p and have the same device. The Examiner takes official notice to reverse the conductivity type. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a discontinuous contact to provide connection from one level 132 to another 140 with vias (fig. 1A).

With regards to claims 11 and 30, Nishizawa is discussed above, it does not show a separation layer which is formed on the substrate to provide electrical insulation between the substrate and the intrinsic region. Worley illustrates in figure 1B a separation layer 100 which is formed on the substrate 102 to provide electrical insulation between the substrate and the intrinsic region. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have an insulation layer so at least many devices can be include on a single die (Worley col. 1, lines 21-30).

With regards to claim 12-14 and 31-33 these are product by process claims (see above).

With regards to claims 15 and 34, Worley illustrates in fig. 1B the light-receiving device has a structure with a plurality of light-receiving regions, each of which comprises the first region 132 and the second region 134, and an isolation region 128 is formed between the light-receiving regions for electrical insulation therebetween.

With regards to claims 35 and 36, the claimed use of structure is not considered to add any structure to the claimed device and is considered to be intended use of the device. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Allowable Subject Matter

Claims 3-5, 16 and 21-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Patent No. 3,928,866 to Digoy (illustrates a detector with grooves at different depths), U.S. Patent No. 4,377,817 to Nishizawa et al. and Japanese Patent Application No. 58-61682 to Kagawa et al. (illustrate a sensor with conductivity type regions at different depths).


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Field of Search	Date
U.S. Class and subclass: 257/449, 457, 458	May 31, 2005
Other Documentation: None	N/A
Electronic data base(s): EAST (USPAT, US-PGPUB, JPO, EPO, Derwent, IBM TDB)	May 31, 2005

Any inquiry concerning this communication or earlier communications from an examiner should be directed to Primary Examiner Allan Wilson whose telephone number is (571) 272-1738. Examiner Wilson can normally be reached 7:00-4:00 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Allan R. Wilson
Primary Examiner
31 May 2005